Overview of existing Service efforts to select species

The Role of Surrogate Species in Defining Priorities in the Southeast U.S.

Peninsular Florida
Surrogate Species Training
September 25 – 26, 2012

Selecting Surrogate Species (Please, please, consider me…)

















Main Questions

What are “Service Priority Species?”

What are some of the Lists that are available for selecting Surrogate Species?

How has the Southeast Region applied a trial process under SHC to select Species for conservation (2009 Biologists’ Conference)?

What is underway now, working with State and other Conservation Partners (Conserving At-Risk Species)?

“Service Priority species” are easily defined as:

- Threatened and Endangered Species, Subspecies, and Vertebrate Populations (also candidates)
- Migratory Birds
- Interjurisdictional Fish (e.g., Anadromous and Catadromous species, Sport Fisheries in support of mitigating Federal Projects)
- Marine Mammals (i.e., for FWS, Manatee)
- Resident wildlife of State management interest or conservation concern, occurring on National Wildlife Refuges

While the definitions are straightforward, the total number of "priority" species is Overwhelming!

- Nationally, "priority species" for the Service equates to at least several thousand species, subspecies, and vertebrate populations
- So, is there a means by which we can conserve many of these species by focusing on a few?
- Well, that's what we're here to discuss. Trying to address the conservation needs of each priority species has had very limited success over the decades.
- "Focusing" on a select number of species to show better success rates is not a new concept for the Service.

Examples of Service Lists to Focus on a Few Species

- Regional Priority Species (2007) which also included Fisheries
- Spotlight Species for Endangered, Threatened, Proposed, Candidate, and Species-at-Risk
- Birds of Management Concern (both hunted and non-hunted species) and Birds of Conservation Concern (non-hunted species)
- Resources (often Species) of Concern for Refuge Habitat Management Plans

With all of these priorities and resources of regional importance how do we choose how much to do what and where?

- Recovery Plans for Threatened and Endangered Species
- Migratory Bird Conservation Plans (NAWMP, Flyway, PIF, Shorebirds, Waterbirds)
- Fishery Management Plans
- State Wildlife Action Plans, TNC Ecoregional Plans, etc.

Other Organizations and their Species Lists

Species of Greatest Conservation Need in State Wildlife Action Plans

Natural Heritage Rankings (managed by NatureServe and State Natural Heritage Programs

Southeast Aquatic Resources Partnership/ Southeastern Fishes Council

Bird “Watch Lists” (American Bird Conservancy, Audubon, Cornell Lab)

Partnership in Amphibian and Reptile Conservation

Southeast Bat Diversity Network

Xerces Society

North American Butterfly Association

Center for Plant Conservation

Are these lists useful for identifying Surrogate Species?

The actual answer depends on at least these factors:

(1) On how the process is established (our charge this year),

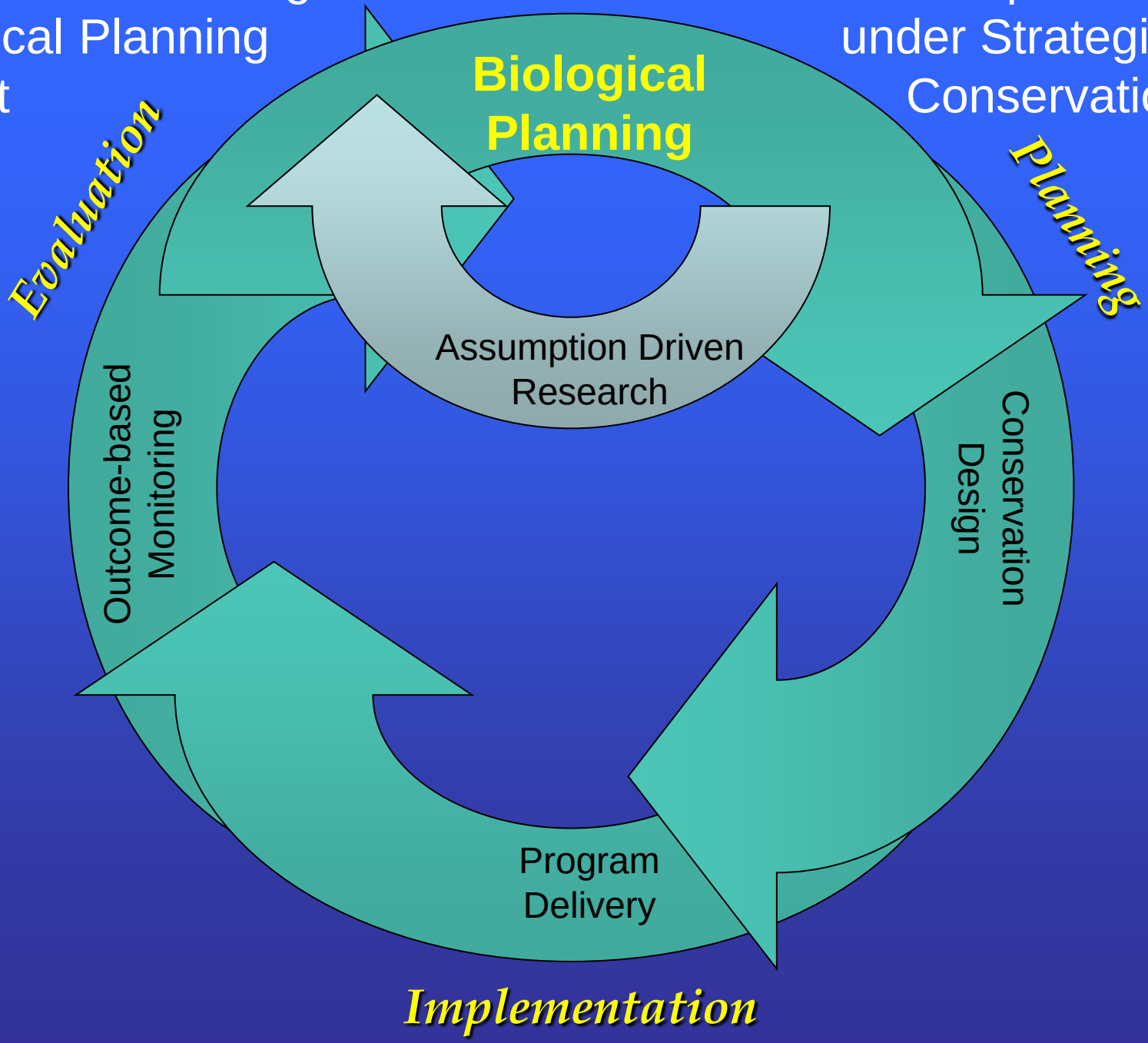
(2) Defining explicit objectives for the process (what do we really want),

(3) the information available for each species, and

(4) How we define what species or group of species each Surrogate species is intended to represent

Migratory Birds and some Threatened and Endangered species may have advantages as there are often population and/or habitat objectives of some kind specified in Recovery or other Conservation Plans. But are these objectives useful in covering the spatial or habitat requirements for larger subsets of species?

We are now challenged to find this out as the first step in Biological Planning under Strategic Habitat Conservation



The Process…First, identify species but consider later elements in doing so. From Strategic Habitat Conservation Handbook (February 11, 2008)

Biological Planning	**Identify Priority, and then Focal (i.e., Surrogate) Species**	
	Population Objectives	
	Limiting Factors	
	Species - Habitat Models	
Conservation Design	Landscape/Habitat Assessment	
	Decision Support Tools	
	Habitat Objectives	
	Integrate Multiple Species Objectives	
Conservation Delivery	Conservation Treatments	
	Program Objectives	
Outcome-based Monitoring	Conservation Tracking Systems	
	Habitat Inventory and Monitoring Program	
	Population Monitoring Program	
Assumption-driven Research	Species/Habitat Models	
	Management Treatments	

A Road Map For Implementing Strategic Habitat Conservation in the Southeast Region

Working Draft Version 1.0

Prepared by: The Southeast Region Regional Advisory Team

Prepared for: The Southeast Region Regional Directorate Team

December 2008

Appendix E.

Habitat-Species considerations

Task under Strategy 1.2.1 Define species and habitats that require conservation attention and are the responsibility of the Service in cooperation with conservation partners. Note: This work already has been initiated in the context of the Southeast Region Biologists' Conference to be held in February 2009.

Southeast Region Biologists' Conference
Callaway Gardens, GA
February 23-27, 2009

A major objective of the Conference was to begin discussions on the implementation of SHC in the Southeast Region, using both Habitat and Geographic breakout sessions

What are the Broadly Defined Habitats and Endangered Ecosystems in the Southeast?

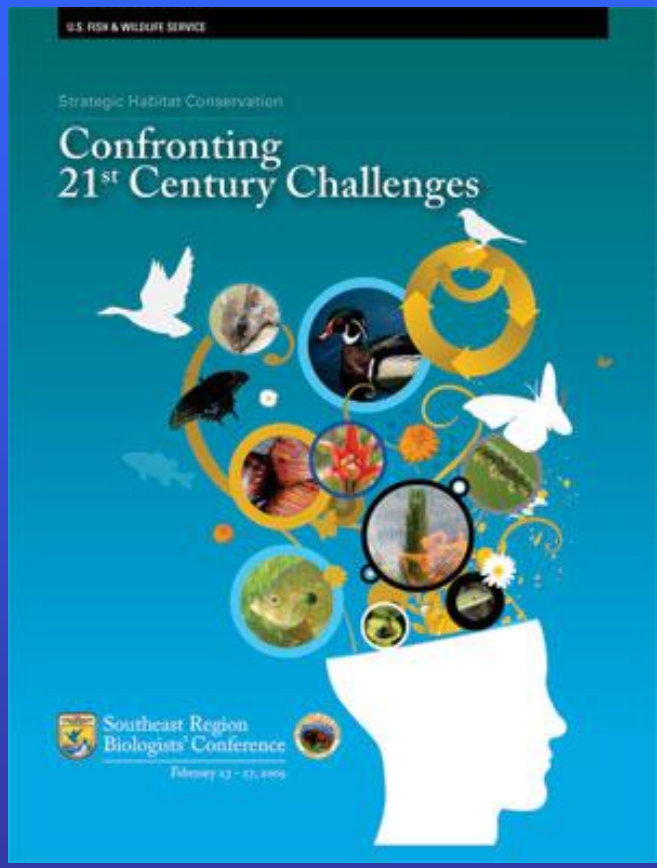
How do we define geographies consistent with physiographic and hydrologic divisions in the Southeast, and allow for efficient administration of SHC implementation?

And how do these relate to Conservation of Service Priority Species?

Defining Geography and Habitat is not as simple as Defining “Priority” Species

Ecological Communities ("Broadly-defined Habitats") of the Southeast Region

- Beaches and Dunes
- Caves, Karst, Springs
- Estuarine (marshes) & Marine
- Freshwater Aquatics
- Freshwater Marshes
- Freshwater Managed Wetlands
- Grasslands
- Forested Wetlands-mineral soil
- Forested Wetlands-organic soil (pocosins, Okefenokee)
- Montane Conifers and Upland Forests
- Southern "open" Pine
- Trop. Hardwoods, mangroves, s FL Slash Pine Rocklands
- Xeric (Florida) Scrub and Coastal scrub
- Other Shrub-scrub (glades, bogs, patch prairies)



Multi-species Umbrella Concept

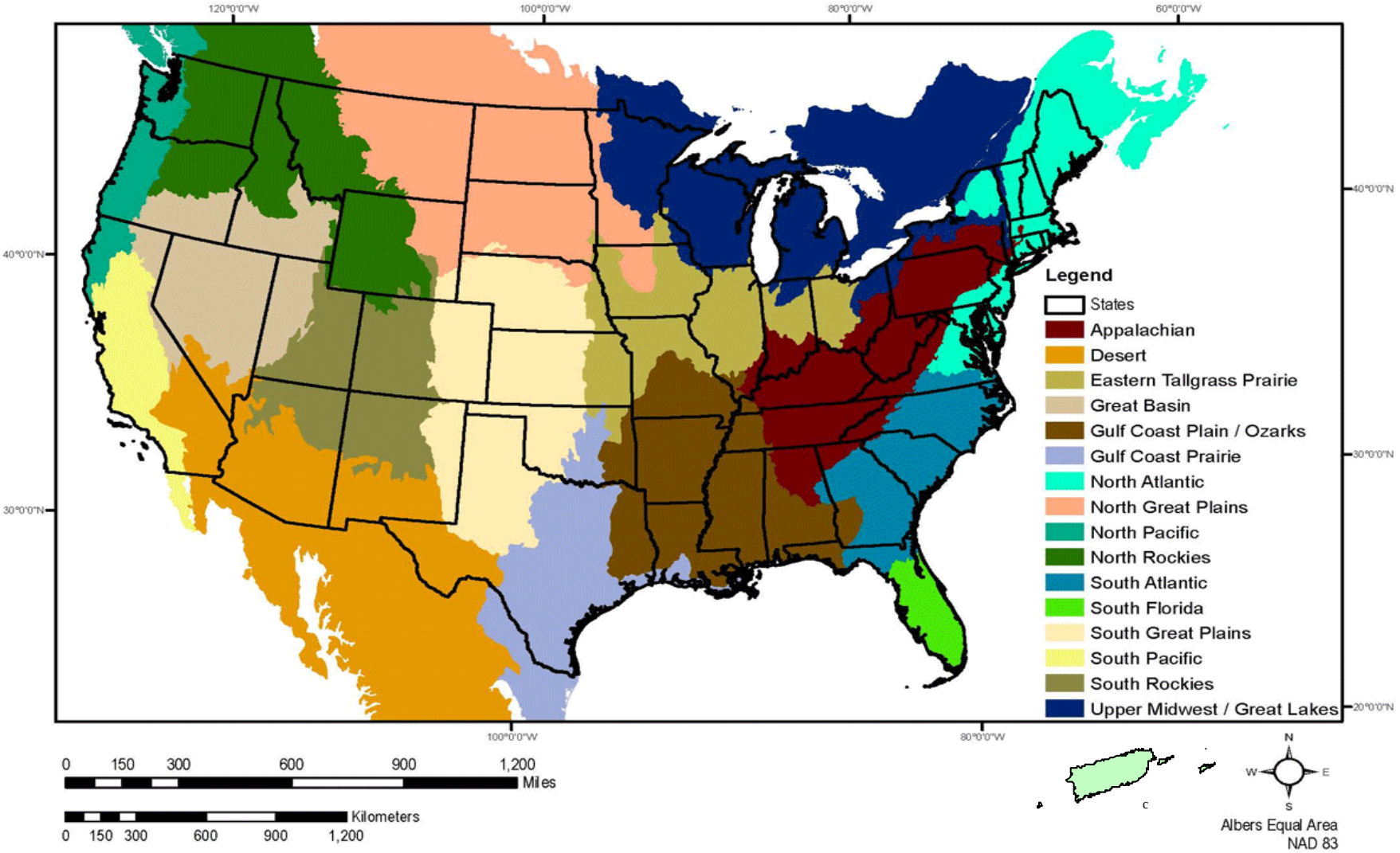
- Subset of species within broadly defined habitats ("Ecological Community" breakouts) representing the spatial requirements and range in habitat conditions for priority species associated with each habitat.

- We refer to these as "Umbrella" Species."

- Also, "Umbrella Species Suites" are identified when a group of very locally occurring species collectively across the region represent important habitat conditions not otherwise captured above (such as for caves and for many species of locally occurring aquatic species, plants occurring on, e.g., glades, rock outcrops).

Geographic Areas Which serve as a basis for Landscape Conservation Cooperatives 18 Aug 2009

Conterminous United States



Endangered Ecosystems: Southern “Open” Pine (mostly longleaf, slash, shortleaf, loblolly)

Critically Endangered (98% decline)

- Longleaf Pine Forests and Savannas of Southeastern Coastal Plain
- Loblolly-Shortleaf Pine and Hardwoods of West Gulf Coastal Plain

Endangered (85-98% decline)

- Wet Longleaf Pine Savanna and Longleaf Pine Woodland in Louisiana

Rank Order of Broadly-defined Habitats supporting Spot-light Species

(1) Freshwater Aquatics
(2) Tropical Hardwoods-Pine Rockland
(3) Southern Pine
(4) Shrub-scrub (glades, barrens, rock outcrops, bogs, etc.)
(5) Beaches and dunes
(6.5) Caves, Karst, Springs
(6.5) Xeric and maritime shrub

Spotlight Species occurring in Southern “Open Pine

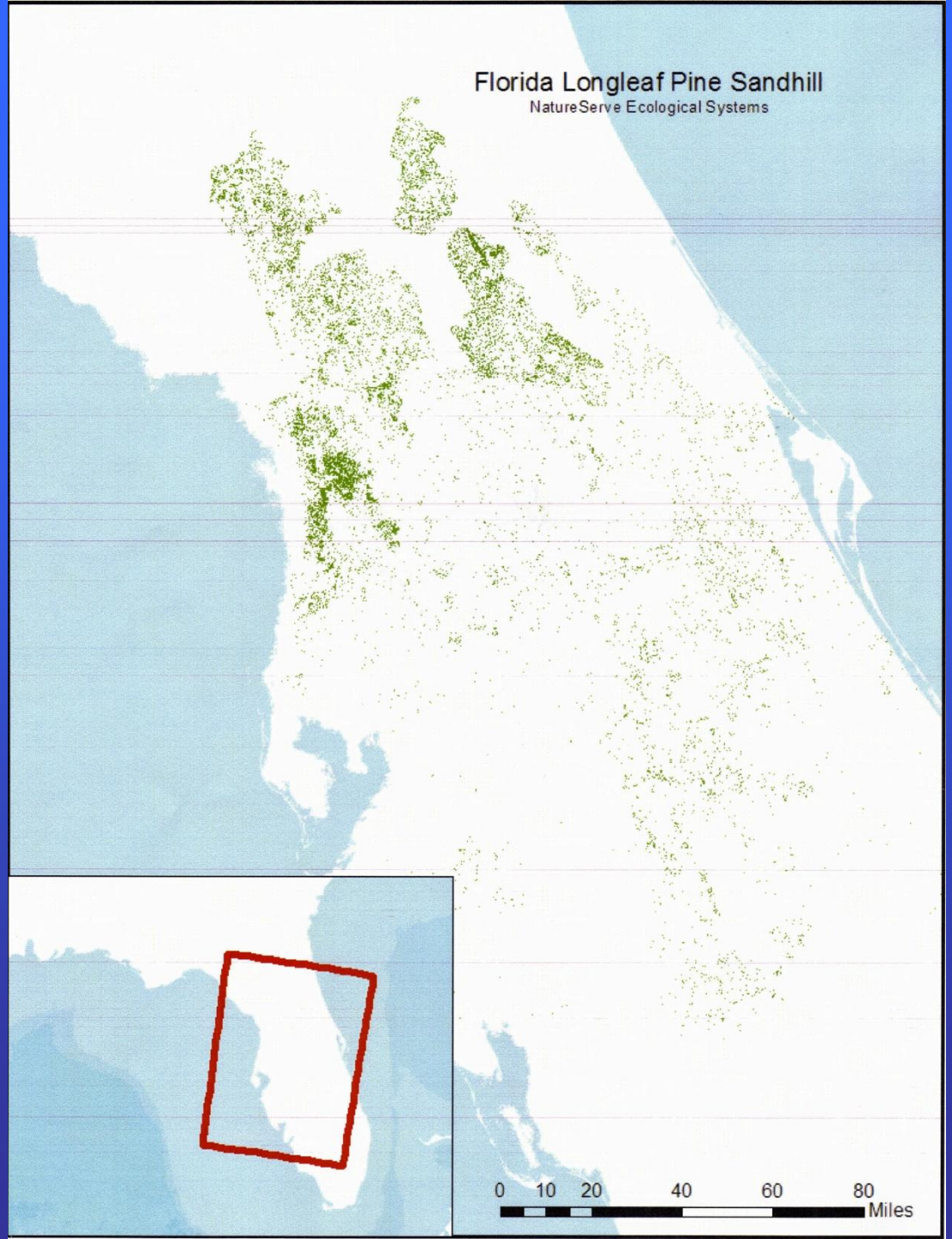
Gopher tortoise (unlisted range, also occurs in xeric scrub and grasslands, prairies, savannas)
Louisiana pine snake
Mississippi gopher frog
MS Sandhill crane (also occurs in grasslands, prairies and savannas)
Scrub buckwheat
Telephus spurge
Panama City crayfish
Aster spinulosus (Apalachicola/Georgia aster)

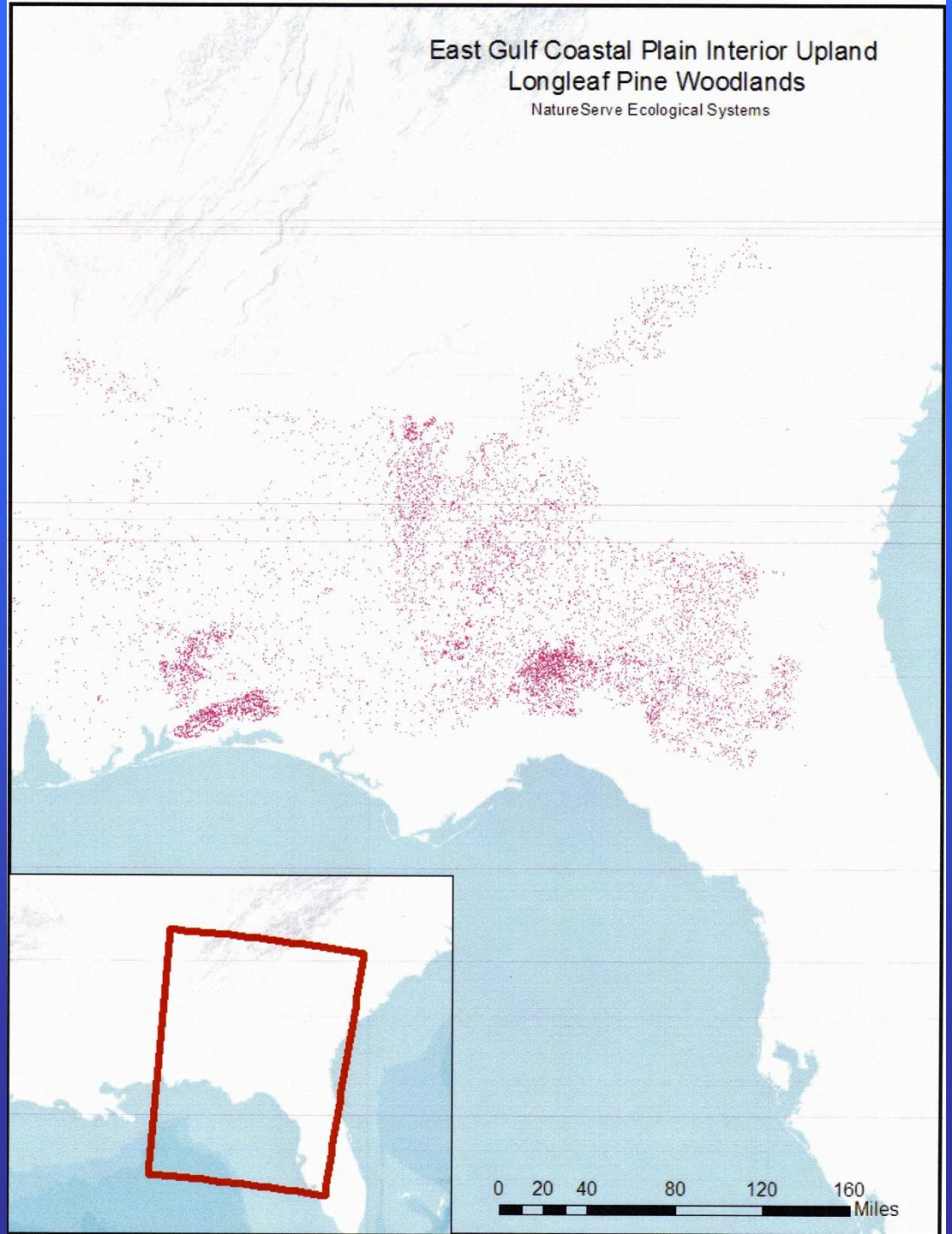
Open Pine Ecological Systems

Groups of Ecological Systems:

- Longleaf Flatwoods and savannas
- **Longleaf Sandhills**
- Longleaf Woodlands
- Shortlead-Loblolly-Hardwoods

Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland
Southern Atlantic Coastal Plain Xeric River Dune
West Gulf Coastal Plain Stream Terrace Sandyland Longleaf Pine Woodland
Florida Longleaf Pine Sandhill


Florida Longleaf Pine Sandhill
NatureServe Ecological Systems
0 10 20 40 60 80
Miles


East Gulf Coastal Plain Interior Upland
Longleaf Pine Woodlands
NatureServe Ecological Systems
0 20 40 80 120 160
Miles

Longleaf Pine

South Florida Slash Pine

Pine Forest Priority Species

- Red-cockaded Woodpecker
- SE American Kestrel
- Brown-headed Nuthatch
- Bachman's Sparrow
- Northern Bobwhite

What are area requirements to support 500 pairs/coveys/family groups of other priority open pine woodland species?

- Acreages below assume substantial areas included in landscapes that are unsuitable for these species

- Red-cockaded Woodpecker > 125,000 acres
  Red-headed Woodpecker ~ 25,000-50,000 acres
  Brown-headed Nuthatch ~ 15,000-30,000 acres
  Bachman's Sparrow ~ 15,000-30,000 acres
  Northern Bobwhite ~ 10,000-20,000 acres

Herps strongly associated with Longleaf Pine

Gopher frog

“Flatwoods” Salamander

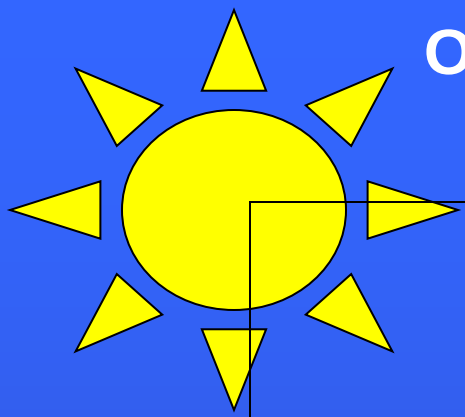
Short-tailed Snake

Gopher Tortoise

Pine Barrens treefrog

Mimic glass lizard

Open Pinelands Community Profile Schematic



Pine Canopy

RCW

Snags/Stubs (Standing)

Brown-headed Nuthatch
Red-headed Woodpecker

Herb Groundcover

Bachman's Sparrow
Aristida/Andropogon
Northern Bobwhite

Coarse Woody (Down)

Indigo Snake
Flatwoods Salamander

Thermal Refugia

Ephemeral Wetlands (Open)

Flatwoods Salamander
Gopher Frog

Soil Series

Gopher Tortoise
Pocket Gopher

Burrows

Gopher Frog
Indigo Snake

Fire is an essential Management Tool, but are there specific conditions we should be managing for?

Fire Management Species Profiles

Help to better define habitat management objectives that are SMART and based on Best Available Science

Help to communicate among service professionals and cooperators (fire and biology)

Target management of southeastern open pine systems (first round).

Guide habitat managers in setting local objectives for management in fire adapted systems.

The foundation for monitoring protocols.

SMART Objectives	
Bachman's Sparrow	***Amophila aestivalis***

- Maintain/increase live bunch grass-forb understory at/to >65% cover, as measured by the end of the first post-treatment growing season (Dunning and Watts 1990).
- Expose mineral soil surface in patches over at least 10% of the treated area and reduce mean litter depth to <0.5 inches as measured within 1 month post treatment (Cox and Jones 2008).
- Reduce/maintain woody midstory (1-4 meters tall) cover to/at <20% as measured within 36 months post treatment (Dunning and Watts 1990).
- Maintain pine canopy cover at <60% as measured within 5 years post treatment (Dunning and Watts 1990).

✓Brown-headed Nuthatch

Drafts:

- Bachman's Sparrow
- Henslow's Sparrow
- Painted Bunting
- Red-cockaded Woodpecker
- Eastern indigo snake
- Frosted and reticulated "flatwoods" salamanders
- Gopher frogs
- Gopher tortoise
- Pine snakes
- Pocket gopher
- Wiregrasses
- American Chaffseed
- Pitcher plants

Under Construction:

- ❑Florida Scrub Jay
- ❑Little bluestem
- ❑Sandhill Cranes

Forest Canopy Attributes

- **Total**
  - % Cover 0-80% (30-60%)
  - Ft^2/acre B.A. ≤60
  - # Trees/acre ≤ 1 (*Scrub Jay and Henslow's Sparrow)
- **Composition**
  - % Pine Stems ≥50%
  - % Hardwood Stems < 50%
  - #/ha Hardwood Stems ≤ 2.5
  - m^2/ha Hardwood B.A. ≤ 3.0
- **Pine Canopy** % Cover ≤70%
- **Stem Size** Pine mean dbh ≥10 in. (25 cm)
- Caution: *FL Scrub Jay and Henslow's Sparrows possible "outliers" bias toward non-forest grassland/xeric scrub condition.

Herbaceous Groundcover

- **(Bunch)Grass-Forb**

Live	% Cover	≥ 25%[1]
< 3 ft tall (Henslow's)	% Cover	≥ 65%
Aristida, seed-bearing	% Cover	≥ 1%

- **Woody Shrub**

	Mean Height (Feet)	≤ 2.5-6.0
	% Cover	≤ 60%[1]

- **Woody Mid-story**

(1-4 m tall)	% Cover	≤35%

[1]Note: FL Scrub Jay is an outlier @ ≤50% % Grass and >50% Cover Woody Shrub < 6 ft. tall

Other attributes to be included

- Soil type (indicator for gopher tortoise and other burrowing species, also plants)
- Ephemeral isolated wetlands (breeding herps, particularly gopher frog, “flatwoods” salamander, striped newt)
- Snags/stubs (pine snakes, cavity nesters)
- Thermal refugia (down coarse woody debris for indigo snake, other herps)

Don’t forget us…